

FIG.1 (PRIOR ART)

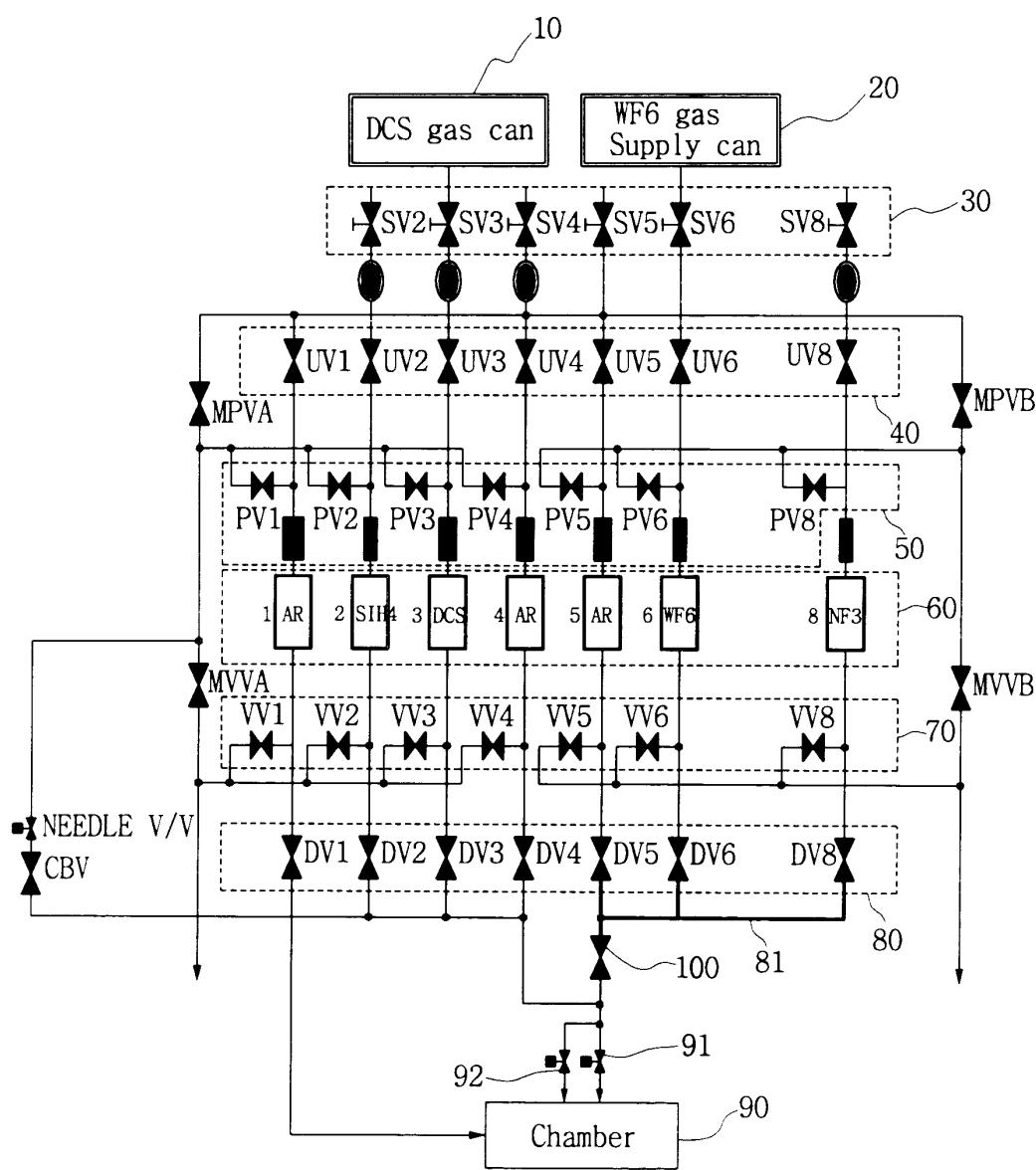


FIG.2

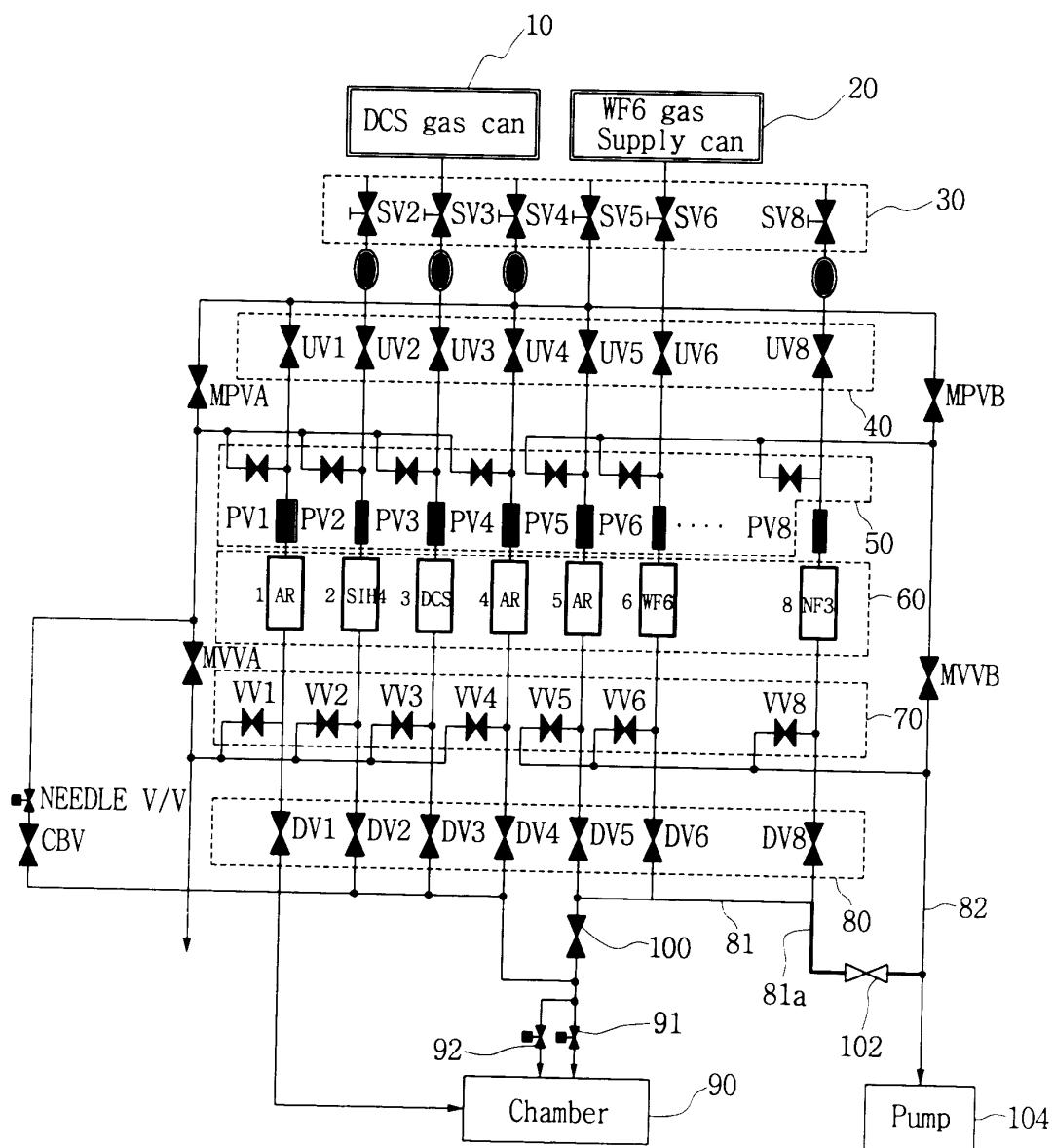


FIG. 3

Step	Name	Time (sec)	Press (mtoorr)	HIVAC	BSAr	SiH ₄	DCS	4Ar	5Ar	WF ₆	VALVE OPEN
1	P/D	20	0	E	50(v)	0	0	50(v)	50(v)	0	UV1,4,5 WV1,4,5 LSV
2	Heat Up	20	300	D	50	0	0	500	500	0	UV1,4,5 DW1,4,5 LSV
3	Heat Up	30	300	D	0	0	0	500	500	0	UV1,4,5 DW1,4,5 LSV
4	SiH ₄ vent	3	300	D	50	300(v)	0	500	500	0	UV1,2,4,5 DW1,4,5 WV2 LSV
5	SiH ₄ flush	40	300	D	50	300	0	500	200	0	UV1,2,4,5 DW1,2,4,5 LSV
6	P/D	20	0	E	0	0	0	0	0	0	UV1,2,4,5 DW1,2,4,5 LSV
7	DCS vent	5	0	E	50(v)	0	50(v)	50(v)	50(v)	0	UV1,3,4,5 WV1,3,4,5 LSV
8	DCS flush	10	120	D	100	0	106	500	300	5.5(v)	UV1,3,4,5,6 DW1,3,4,5 WV6 LSV
9	Nucleation	12	120	D	100	0	106	500	300	5.5	UV1,3,4,5,6 DW1,3,4,5,6 LSV
10	Bulk	20	120	D	100	0	185	500	300	13	UV1,3,4,5,6 DV 1,3,4,5,6 LSV
11	DCS Post	3	120	D	100	0	175	500	300	0	UV1,3,4,5 DW1,3,4,5 LSV
12	Ar Purge	15	120	D	100	0	0	500	5000	0	UV1,4,5 DW1,4,5 LSV
13	P/D	15	0	E	0	0	0	0	0	0	UV1,4,5 DW1,4,5 LSV
14	SiH ₄ Post	3	120	D	100	300	0	500	200	0	UV1,2,4,5 DW1,2,4,5 LSV
15	P/D	30	0	E	0	0	0	0	0	0	UV1,2,4,5 DW1,2,4,5 LSV

Note:

MFC1,2,3,4 and MFC5,6,8 are divided into GAS BOX A and B.
 GAS flowing out of GAS BOX A and B joins one GAS LINE and is again divided into INNER and OUTER NIDDLE V/V.

INNER NIDDLE V/V is FULL OPEN, and OUTER NIDDLE V/V is controlled in the range of 15 to 25mm to maintain UNIFORMITY.

(v) is vented through VENT VALVE.

HIVAC(E) is pumped by turbo pump, pumping (D) is dry-pumped by dry-pump without turbo-pump.